Intro to Indicators

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 # People: Approximately 50

- Crossword
- Key words

Process for achieving results
Steps:
1. to 4.
    5. Monitor for Results – where SOLEC and indicators fit in!
    6.

Ecosystem vision, goals, objectives and indicators

    1. VISION = overall goal

To maintain chemical, physical, biological
GLWQA
Vision on Lake Superior example

Then set more discreet goals
Balances society values and stresses
Goal of GLWQA

Each goal has an ecosystem objective.

Indicators:
Specific measures that will tell us about an ecosystem component; need a target or a reference value.
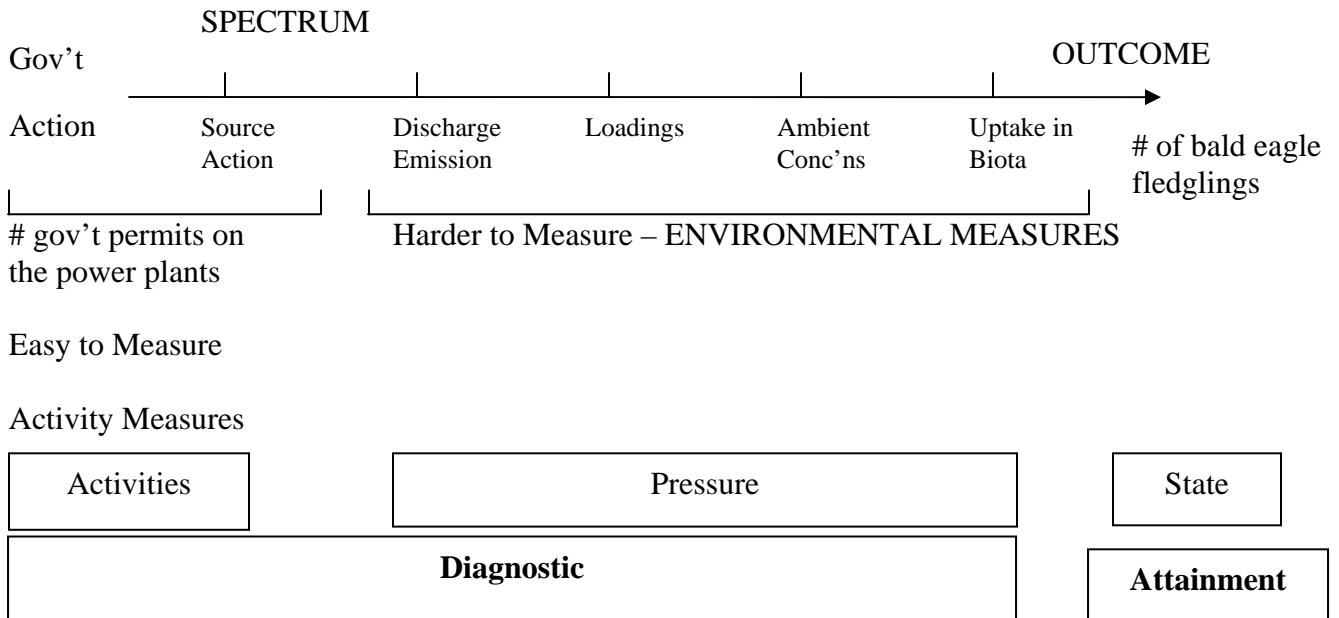
Two points:
1. The measurement – observed state of the ecosystem
2. The reference value – the desired state of the ecosystem

How to ID end points is the hard part. You need to know how much contaminant is there in the first place (1) and how toxic it is to know when enough reduction is reached (2).

Don't be fooled by trends of decline that look rapid; on log plots they aren't as rapid!
Takes a long time to get contaminants out of the system.
Lake Michigan coho salmon is an example.

Indicator Framework: Comparison

SPECTRUM

Gov't   OUTCOME

Action   Source   Discharge   Loadings   Ambient   Uptake in
          Action   Emission   Conc'ns   Biota   # of bald eagle
                                                                           fledglings

gov't permits on   Harder to Measure – ENVIRONMENTAL MEASURES
the power plants

Easy to Measure

Activity Measures

Activities	Pressure	State
Diagnostic		**Attainment**

Indicator Selection Process

- >850 possible indicators considered
- reduced to 80
- discussed at SOLEC '98, '00
- list revised/reviewer
- evolving list (not static)
- SOLEC '04 considering: groundwater, forests, social values

Indicator groups ("bundles")
There are a few ways to cluster them:
- By issue
- By environmental compartment
- By land use

9 Bundles - 2004
Under aquatic habitats need to add tributaries, inland lakes, inland wetlands

Rainbow diagram – state of environment indicators

Indicator assessments
Good etc
Trend

Q & A

Everything today (bundles) was "MIXED", is it too broad of a category to be useful?

- Still need to examine each indicator separately or figure out which water body is impaired
- Not intellectually satisfying to have a "mixed" category. Need to look inside the bundles

Indicators vs. Indices – groups the indicators into one value with an implied meaning

Are any of the 85 indicators actually indices?

- None developed as an index except IBI (in wetlands)
- New forest lands indicator has 4 elements, but not a true index?

Developing a relational database/matrix to allow indicators to be examined many different ways – looks at it in all the bundles

For Great Lakes basin reporting (like at SOLEC), whole basin picture of good, fair, mixed, is reported, but some indictors need to be applied to each lake – harbour – local areas of concern.

AOC's
Remedial Action Plans – require indicator reporting

Indicators aren't static, so how does this affect our ability to set baselines?

- Some will be dropped if external reviews warrant it

How did you reduce 850 indicators to 80?
- Filtered through criteria
- Available "Version 3" archive site
- Incredible challenge!!! Hard to create a vision that covered such a large area, 2 nations, industry etc.

Presentation will be available via email (or website eventually)